



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
525 NE Oregon Street
PORTLAND, OREGON 97232-2737

August 21, 2002

Dan Shepard, General Manager
Grants Pass Irrigation District
200 Fruitvale Drive
Grants Pass, Oregon 97527-5268

Dear Mr. Shepard:

Please find enclosed the Permit for Incidental Take of Threatened Species issued to the Grants Pass Irrigation District for operation of the Savage Rapids Dam within Josephine and Jackson Counties, Oregon (Permit No. 1385), subject to provisions of its Habitat Conservation Plan. The Grants Pass Irrigation District Habitat Conservation Plan (August 14, 2002) is also included.

Questions regarding this permit should be directed to Frank Bird of my staff in the Oregon Habitat Branch at 541/957-3383.

Thank you for your cooperation.

Sincerely,

Michael R. Crouse
f.1 D. Robert Lohn
Regional Administrator



**NATIONAL MARINE FISHERIES SERVICE
PERMIT FOR INCIDENTAL TAKE OF THREATENED SPECIES**

Permit Number: 1385

Expiration Date: November 1, 2005

Permit Holder:

Grants Pass Irrigation District
200 Fruitvale Drive
Grants Pass, Oregon 97527-5268

Principal Officer and Contact:

Dan Shepard, General Manager
Phone: 541-467-2582
Fax: 541-479-9461

Reporting Requirements: As described in section 3.4 of the Habitat Conservation Plan

Authorization:

Grants Pass Irrigation District (GPID) is hereby authorized incidental take of threatened Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*), associated with its irrigation diversion operations at Savage Rapids Dam on the Rogue River, Oregon, subject to the provisions of its Habitat Conservation Plan (HCP), Section 10 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. sections 1531-1543), the National Marine Fisheries Service (NOAA Fisheries) regulations governing ESA-listed species permits (50 CFR Parts 222.302-222.309), and the conditions hereinafter set forth.

Unlisted covered species include Klamath Mountains Province (KMP) steelhead (*O. mykiss*) and Souther Oregon/Northern California Coastal (SONCC) chinook salmon (*O. tshawytscha*).

Abstract:

The GPID HCP utilizes a combination of conservation measures that are expected to minimize and mitigate, to the maximum extent practicable, the impacts of take of ESA-listed coho salmon, and unlisted chinook salmon and steelhead during irrigation operations in the period for 2002-2005. The HCP also requires GPID to take certain steps during the time the permit is effective to work to secure authorization and funding for dam removal and to install off-site electrical pumping stations along the Rogue River near Grants Pass, Oregon, by November 1, 2005, to provide for the long-term conservation of listed and unlisted covered species. To ensure that the mitigation and minimization strategies are effective, the HCP incorporates a variety of monitoring components, and if needed, adaptive management changes in the conservation measures set forth. A detailed monitoring and reporting schedule can be found in section 3.4 of the HCP.

Incidental Take:

Covered activities that may cause incidental take of ESA-listed and unlisted species will be conducted at the site of the GPID irrigation diversion at Savage Rapids Dam on the Rogue River, Jackson and Josephine Counties, Oregon. These activities include irrigation diversion operations and associated maintenance activities.

NOAA Fisheries anticipates that an undetermined number of SONC coho salmon may be taken as a result of the covered activities during the effective period of the permit. Based on estimates of juvenile coho salmon population sizes, and anticipated project effects presented in NOAA Fisheries' biological opinion, the injury and mortality of salmonid juveniles each year during the interim period is estimated to be between 1,400 and 2,500 fish annually. Total take (direct mortality and harm from migration delay) of adult coho salmon is estimated to be between 200 and 1,200 fish annually. In addition, SONCC chinook salmon and KMP steelhead will also have an undetermined level of take as a result of the covered activities during the effective period of the permit. Incidental take is expected to be in the form of harm, harassment, kill and injury, and for these species, is unquantifiable at this time, but is expected to be proportionally the same as that stated above for SONC coho salmon.

Conditions:

1. GPID may not transfer or assign this permit to any other person(s), as person is defined in Section 3(12) of the ESA. This permit is not in force or effective if transferred or assigned to any other person.
2. A copy of this permit, including the accompanying HCP, must be available to GPID personnel at all GPID facilities. All applicable provisions of this permit must be presented and clearly explained to all authorized officers, employees, contractors, or agents of GPID conducting authorized activities.
3. GPID, in effecting the take authorized by this permit, is considered to have accepted the terms and conditions of this permit and to be prepared to comply with the provisions of this permit, the applicable regulations, and the ESA.
4. Upon request by NOAA Fisheries, GPID must allow NOAA Fisheries, or any other person(s) duly designated by NOAA Fisheries, to inspect GPID's records and facilities if such records and facilities pertain to (i) activities for which take of listed species is authorized by this permit, (ii) ESA-listed species covered by this permit, or (iii) NOAA Fisheries's responsibilities under the ESA.
5. This permit takes effect for listed covered species on the date of its issuance. For unlisted covered species, the permit will take effect upon the listing of a species as endangered, and for species listed as threatened, on the effective date of a rule under section 4(d) of the ESA prohibiting take of the species.
6. GPID is responsible for the activities of any individual who is operating under the authority of this permit. Such activities include capturing, handling, releasing, transporting, maintaining, and caring for any fish authorized to be taken by this permit.

7. Upon locating any dead, injured, or sick individuals of any listed species covered by this permit, GPID shall, within three working days, notify NOAA Fisheries's Roseburg Field Office, Roseburg, Oregon, 541.957.3383. Instructions for proper handling and disposition of such specimens will be issued at that time. Care must be taken in handling sick or injured specimens to ensure effective treatment and care, and in the handling of dead specimens to preserve biological material in the best possible state. This condition does not apply to spawned-out carcasses.
8. The fee in 50 CFR Section 222.307(d)(5) to cover the cost of issuance of this permit has been waived.

Date Issued: _____

Issued by: _____
D. Robert Lohn
Regional Administrator
Northwest Region

GRANTS PASS IRRIGATION DISTRICT

HABITAT CONSERVATION PLAN

OPERATION OF SAVAGE RAPIDS DAM WITHIN
JOSEPHINE AND JACKSON COUNTIES, OREGON

Grants Pass Irrigation District
National Marine Fisheries Service

August 14, 2002

Refer to: 2002/01450

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Background	1
1.2	Facilities Description	2
2.	DESCRIPTION OF THE PLAN AREA	4
2.1	Climate, Soils, and Geology	5
2.2	Water Resources	5
2.3	Fisheries Habitat and Resources	6
2.4	Threatened and Endangered Species	7
3.	OPERATION FOR 2002-2005 IRRIGATION SEASONS	8
3.1	North Turbine/Pump Intake	9
3.2	South Gravity Intake	9
3.3	Fall Operations	10
3.4	Monitoring and Reporting	10
3.5	Authorization and Funding for Removal of Savage Rapids Dam	11
4.	EFFECTS OF IMPLEMENTATION OF THE HCP	12
5.	FUNDING	15
6.	REFERENCES	15
Figure 1.	Vicinity map.	17
Figure 2.	Location of Savage Rapids Dam.	18

1. INTRODUCTION

This habitat conservation plan (HCP) applies to operation of Savage Rapids Dam on the Rogue River for irrigation purposes. It is submitted in fulfillment of the requirements of Section 10(a)(1)(B) of the Endangered Species Act, 16 U.S.C. § 1539(a)(1)(B), for issuance of an incidental take permit (ITP). The HCP will be in effect from May 7, 2002, through November 1, 2005, at which time GPID will terminate use of the dam for diversion purposes, in accordance with terms of the Consent Decree in *United States v. Grants Pass Irrigation District*, Civil No. 98-3034-HO (D. Or. August 25, 2001) (Attachment A). The plan and permit may be extended to November 1, 2006.¹

1.1 Background

Savage Rapids Dam is located on the Rogue River in southwest Oregon at river mile (RM) 107 about 5 miles east of the city of Grants Pass, Oregon (Figures 1 and 2). Savage Rapids Dam is owned and operated by Grants Pass Irrigation District (GPID). Its sole purpose is to divert water for irrigation, with diversion structures present on both dam banks. Fish passage at Savage Rapids Dam has been an issue since the dam was constructed in 1921 by GPID. The concrete structure has a structural height of 39 feet, with a fish ladder constructed on the north side at the time the dam was completed. An additional ladder was constructed on the south side in 1934. Rotating fish screens were an initial part of the gravity diversion on the south side. Early attempts to screen the pumping diversion on the north side were unsuccessful and the diversion remained unscreened until 1958. Fish passage improvements made in the late 1970's have helped to reduce fish deaths, but fish passage problems continue.

In 1997, the southern Oregon/northern California (SONC) coho salmon were listed as threatened under the Federal Endangered Species Act (ESA), as amended (62 FR 24588). Critical habitat was designated for the SONC coho salmon on May 5, 1999 (64 FR 24049). Critical habitat for SONC coho salmon consists of all waterways below naturally impassable barriers including the project area and the Rogue River. Also in 1997, interim protective regulations were issued prohibiting take of SONC coho salmon (62 FR 38479).

Savage Rapids Dam has been the subject of two on-going lawsuits. The first lawsuit concerns the state water right cancellation. The second lawsuit concerns violations of the Federal ESA. On April 22, 1998, the United States filed a motion for a preliminary injunction seeking to enjoin GPID from diverting water at Savage Rapids Dam during the 1998 juvenile SONC coho salmon migration. Stipulated agreements were reached for operations during the 1998-2001 irrigation seasons, while the interested parties continued to work to achieve long-term solutions to the fish passage issues.

¹ According to the Consent Decree, the District shall cease operating the Dam as its diversion facility by November 1, 2005, with a possible extension of this deadline up to but not beyond November 1, 2006. (See Paragraphs V.C.3 and X.B of the Consent Decree.) The extension until November 1, 2006, may be granted if there are delays in implementing the pumping/dam removal plan that are not the fault of the District.

As a long-term solution to the fish passage problems, GPID is seeking to remove Savage Rapids Dam and to replace the existing diversion facilities with new, electrically-powered pumping plants. Dam removal and construction of new diversion points is expected to proceed in accordance with Federal legislation introduced on October 23, 2000, as S. 3227 (106th Congress, 2nd Session). The District is committed to continuing support of this legislation. However, the funding is uncertain at this time, and GPID would like to continue operation of the current facility to provide water to its patrons.

On January 18, 2001, GPID submitted an application to NOAA Fisheries for an ITP for its operations at Savage Rapids Dam for the 2001 irrigation season. GPID also submitted a HCP describing facility operations. NOAA Fisheries responded to the application with an EA, BO, and ITP providing ESA coverage for the action for the 2001 irrigation season. The ITP expired on May 4, 2002, and GPID submitted an application for a new ITP for subsequent years. The new ITP will cover GPID operations at Savage Rapids Dam for the period 2002-2005. Operations at the dam are expected to be essentially the same each year, resulting in similar effects. Under terms of the Consent Decree, electric pumping stations will replace the dam as a diversion mechanism for the irrigation season commencing in 2005, or possibly 2006.

To receive an ITP for SONC coho salmon under section 10(a)(1)(B) of the ESA, GPID prepared a draft application for an ITP (September 27, 2001), which included a draft HCP. In addition to SONC coho salmon, the HCP also addresses the impacts of continued operation of the facilities on Klamath Mountains Province (KMP) steelhead and southern Oregon/California coastal (SONCC) chinook salmon, both unlisted species. The ITP would provide ESA coverage for SONC coho salmon, and if either SONCC chinook salmon or KMP steelhead were to be listed under the ESA, the permit would be amended to include the newly-listed species at the time of listing.

GPID proposes to continue current operations based on modifications developed during 1998-2001. During implementation of the HCP, GPID will pursue federal authorization and funding for the removal of Savage Rapids Dam and will complete dam removal and installation of electric pumping stations in accordance with the terms of the Consent Decree.

1.2 Facilities Description

The dam is a combination gravity and multiple-arch, concrete structure. The dam has a structural height of 39 feet, a hydraulic height of 30 feet, and an overflow crest with a length of 465 feet. The crest is divided into 16 bays. The first seven at the north end of the dam are of multiple-arch construction with buttresses on 25-foot centers. The rest of the bays are concrete-gravity sections.

Metal stoplogs, installed and removed by a motorized cableway and hoist, control water going over the spillway section and increase the reservoir height to facilitate more efficient operation of the pumping station and diversions. A small, concrete-block structure above the north end of

the dam houses the hoist equipment. The stoplogs raise the upstream water surface 11 feet, and are in use during the irrigation season only.

In the center of the dam, at bays 10 and 11 are two river outlets controlled by 16-by-7 foot, hydraulically-operated, radial gates, each with a capacity of 3,000 cubic feet per second (cfs). The gates lift up and are used to de-water the reservoir to permit access to the crest of the spillway while stoplogs are being installed and removed. Water exits the reservoir at the bottom of the radial gates when in operation, and completely de-water the reservoir at full use.

At the north end of the dam is a concrete structure designed to contain pumping equipment. The pumping facilities allow water to be pumped from the Rogue River into four canals at higher elevations, using hydraulically-powered pumps. One turbine drives a centrifugal pump which supplies water through a 42-inch pipe within the dam to the South Highline Canal and Savage Lateral on the south side of the Rogue River. The other turbine drives two pumps connected in series which supply water to the Tokay Canal and Evans Creek Lateral on the north side of the Rogue River. The two headworks are fed by the turbine and pump system on the north bank that diverts up to a total of 800 cfs from the river, 660 cfs of which drives two turbines, providing the energy for three pumps to lift about 90 cfs up to the canals. The water that drives the turbines returns directly to the tailrace of the dam.

The remaining diversion from the dam is the gravity diversion into the Gravity Canal (also known as the South Canal) at the south end of the dam. Flow is regulated by two four-foot by four-foot, hand-operated, slide gates in a headworks at the upstream face of the dam. GPID facilities also includes nearly 160 miles of canals and four relift pumping plants (BOR 1995).

There are fish ladders located at both the north and south sides of the dam to provide for upstream and downstream fish migration. The north fish ladder is a rectangular, concrete structure containing pools eight feet long and nine feet wide. The south fish ladder is a concrete structure approximately 100 feet long and divided into 10 pools. Extending from the bottom of the south ladder to the river are a series of fish resting pools and attraction channels.

GPID currently serves approximately 8,000 patrons owning a total of 7,700 acres in Jackson and Josephine counties. Savage Rapids Dam provides GPID with its primary water supply via canals in the greater Grants Pass area. The water provided by GPID is not treated and thus is not used for human consumption. Of the 8,000 patrons, about 300 own more than five acres and the remaining 7,700 own less than 5 acres. The patrons with more than five acres represent a variety of agricultural interests (*e.g.*, wine grapes, sugar beets, fruit orchards), but some industrial interests are also included in this group (*e.g.*, lumber mills, a golf course). Of the 7,700 patrons owning less than five acres, most use GPID water for small hayfields and/or personal vegetable gardens. Many of these patrons own less than 1/4 of an acre and use GPID water on their lawns (BOR 1995). Many GPID patrons have an alternative water source because they are served by municipal water from the city of Grants Pass, but this water is more expensive than GPID water. However, most GPID patrons, especially those with more than five acres, are outside the city of Grants Pass and do not have an alternative water source.

2. DESCRIPTION OF THE PLAN AREA

Savage Rapids Dam and the GPID service area are within the lower part of the middle Rogue River basin which includes most of Josephine County and a large part of Jackson County (Figure 1). The middle Rogue River is surrounded by mountains, and most of the basin is forested. The headwaters of the Rogue River originate in the Cascade Range near Crater Lake and flows over 215 miles to its confluence with the Pacific Ocean at Gold Beach, Oregon. The total basin area encompasses over 5,000 square miles (USFWS 1995). Two major tributaries, the Illinois and the Applegate Rivers, originate in the Siskiyou Mountains and flow north, entering the Rogue at RM 27 and 95, respectively.

The Rogue River is a designated wild and scenic waterway from its junction with the Applegate River just west of Grants Pass downstream to 10 miles upstream from the mouth at the Pacific Ocean. Savage Rapids Dam is located at RM 107 on the Rogue River, upstream of the wild and scenic reach. Land cover type in the project area is native deciduous and coniferous forest with a mixed shrub and herbaceous understory. Native forest is oak/madrone deciduous woods and pine/Douglas fir mixed conifer forest. The shoreline along the seasonal GPID reservoir is highly developed with scattered houses, lawns, gardens, small pastures, parks, and recreational vehicle campgrounds. In some areas, deciduous trees and shrubs form dense riparian vegetation. Alder, ash, cottonwood, willow, snowberry, sumac and blackberry are common along the shoreline. When the impoundment is lowered at the end of the irrigation season, some persistent grasses are evident, but most land between the impoundment high waterline and the natural high waterline of the river is rocky or gravelly and bare of vegetation.

2.1 Climate, Soils, and Geology

The area has mild, wet winters and hot, dry summers. The city of Grants Pass receives about 30 inches of precipitation annually, most of which falls during October through May. On average, only two inches of precipitation fall during June through September. Snow accumulates at high elevations during the winter and early spring and is the principal source of streamflow during late spring and summer.

In 1998, McLaren/Hart conducted a study to characterize the sediment behind the impoundment at Savage Rapids Dam (McLaren/Hart 1998). Generally, the sediment is sand with gravel on the north bank, and sand with silt on the south bank. The organic content of the soil is low. The sediment contains measurable concentrations of naturally inorganic elements, but virtually no man-made organic chemicals such as pesticides or other organic chemicals (*i.e.*, PAHs). This is also supported by a study conducted by the U. S. Bureau of Reclamation in 2000, in which they examined the chemical and physical content of sediments behind the dam (BOR 2001). In addition, the BOR found that the amount of sediment behind the dam was equivalent to a football field stacked 100 feet high, and would pose no downstream problems following dam removal.

2.2 Water Resources

The flow of the Rogue River at Grants Pass has ranged from 500 cfs to as high as 152,000 cfs (BOR 1995). Two-year return flows are approximately 35,000 cfs. Completion of Lost Creek Dam in 1977 provided significant regulation of flows in the middle reach of the Rogue River. About 10-20% of the total Rogue River flow originates upstream of Lost Creek Dam.

The Rogue River is the principal source for municipal, industrial, and irrigation water as well as for water-based recreation in the Grants Pass area. Under currently designated water rights and instream flow requirements, the Rogue River at Grants Pass has no additional water available for diversion during most of the year (OWRD 1991). The major water user in the area is GPID, which has rights to divert water for irrigation and an instream nonconsumptive water right for operation of its hydraulic turbines. The out-of-stream diversion at Savage Rapids Dam historically averaged 180 cfs, and the nonconsumptive use to power the pump turbines is 660 cfs, which is returned to the river at the site after use. With implementation of a water conservation plan, out-of-stream diversion by GPID is 150 cfs.

In addition to GPID rights, the Fort Vannoy Irrigation District and the Apple-Rogue District Improvement Company have minor irrigation water rights. The cities of Grants Pass and Rogue River divert water for municipal and industrial purposes. In addition, there are large numbers of small irrigators along the river that also divert small amounts of water for personal use.

Water quality of the Rogue River is generally good. Hot, dry periods in the summer can produce undesirable high water temperatures. The reach of the Rogue River between Applegate River and Evans Creek is listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies for not meeting the temperature and bacteria criteria. Bacteria counts exceed the fecal coliform standards 12% of the times measured. Water temperatures exceed established rearing temperatures throughout the summer. Although logging, and urban and agricultural development have had a detrimental effect in some areas, the overall quality of the aquatic system is good (BOR 1995).

2.3 Fisheries Habitat and Resources

The Rogue River supports a large population of anadromous salmonids, including spring and fall chinook salmon, coho salmon, summer and winter steelhead, and sea-run cutthroat trout. Of these, steelhead and chinook salmon are the most abundant and the most widely distributed. There are also four species of resident trout, six species of warm-water game fish, two species of sturgeon, and shad, which have overlapping or coinciding distributions. An Oregon Department of Fish and Wildlife (ODFW) administrative rule for wild fish management (OAR 635-07-525) contains a policy giving protection and enhancement of wild stocks first and highest consideration. Wild fish make up more than 90% of the fall chinook and winter steelhead, and account for about 50% of the spring chinook, coho salmon and summer steelhead that return to the Rogue River (USFWS 1995). The production of hatchery fish in the Rogue basin is done to

mitigate the loss of habitat upstream of Lost Creek and Applegate Dams, both part of the Corps of Engineers Rogue Basin Project.

Habitat within the confines of the reservoir created by Savage Rapids Dam is poor for salmon and steelhead because flow is slowed and bottom sediments do not contain gravelly conditions favorable for spawning beds. Complicating this is the fact that the dam is drawn down to its original channel twice a year, which creates a major flushing action within the reservoir reach. As a result, adults do not generally spawn in the reservoir reach. Juvenile salmonids may be exposed to higher levels of predation from fish and birds as they migrate downstream through the slower moving waters of the reservoir. Seasonal raising and lowering of the impoundment limits the establishment of an aquatic substrate to support significant resident fish populations.

Rainbow trout are common in the middle and upper Rogue River system. Coastal cutthroat trout are found in headwater tributaries of high elevation tributaries. Brook and brown trout are introduced species found in the North Fork Rogue River between Prospect and Union Creek, above Lost Creek Dam.

Warm-water game fish are abundant in lakes, reservoirs and ponds, some at harvestable levels. The most prevalent species are black crappie, largemouth bass, smallmouth bass, bluegill, brown bullheads, and green sunfish. Nongame fish include suckers, carp, roach, sculpins, dace, northern pikeminnow, lamprey eels, and red-sided shiners. The distributions of many of the warm-water piscivorous predators are limited to below the dam because of temperature.

2.4 Threatened and Endangered Species

Coho salmon (*Oncorhynchus kisutch*) of the Rogue River basin are within the Southern Oregon/Northern California (SONC) Evolutionarily Significant Unit (ESU). This ESU was listed as threatened under the ESA by NOAA Fisheries on May 6, 1997 (62 FR 24588). Biological information on SONC coho salmon may be found in Weitkamp et al. (1995). Critical habitat was designated for the SONC coho salmon on May 5, 1999 (64 FR 24049). Critical habitat for SONC coho salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter. Interim protective regulations for SONC coho salmon were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Long-term trends suggest that natural populations are not self-sustaining.

Adult coho salmon migrate upstream past Savage Rapids Dam from October through mid-December (BOR 1995). Spawning occurs in smaller tributaries through January. Juvenile coho salmon typically rear through one entire year in the area where they were spawned, and then migrate to sea as yearling smolts in the spring. Juveniles migrate downstream from approximately April through June. Although some subyearling coho salmon have been captured at Savage Rapids Dam, evidence suggest that these fish were competitively displaced from the

primary rearing areas upstream. It is thought that these subyearling migrants either perish or rear downstream for another year before entering the ocean. Research has demonstrated that coho salmon migrating as subyearling are likely to be smaller than their cohorts that did not migrate, and are poor contributors to adult returns (Solazzi *et al.* 1990). Small tributary streams that are able to maintain flow are the preferred summer habitat for juveniles (Stein *et al.* 1972).

The Klamath Mountains Province (KMP) steelhead (*O. mykiss*) occur in the proposed action area. KMP steelhead, including both summer and winter runs, were designated as a candidate species under the ESA on March 19, 1998 (63 FR 13347). On April 4, 2001, NOAA Fisheries determined that a listing for KMP steelhead was not warranted (66 FR 17845). Biological information for KMP steelhead is found in Busby *et al.* (1994). NOAA Fisheries has also evaluated the status of Southern Oregon/California coastal chinook salmon (*O. tshawytscha*) and determined that listing was not warranted (64 FR 50394).

Both summer and winter steelhead spawn and rear in the Rogue Basin up and downstream of Savage Rapids Dam. Summer steelhead spawn in tributary streams that enter the Rogue River primarily between river miles 65 and 159. Savage Rapids Dam is in the middle of this range at mile 107. 95% of summer steelhead first return to the Rogue River as immature “half-pounders” (ODFW 1994), most of which do not migrate above mile 75. Winter steelhead spawn throughout the Rogue Basin, with 13-25% of the winter steelhead migrating upstream of Gold Ray Dam.

Summer steelhead adults begin migrating past Savage Rapids Dam in mid-May through December, with peak migration from mid-September through December. Winter steelhead adults migrate upstream from January through mid-May, with peak migration from mid-March through mid-May. Juveniles outmigrate from March through September, with the peak occurring in the spring. Juveniles migrate as fry, parr and smolts.

A listing of southern Oregon/northern California coastal (SONCC) chinook salmon was determined to be not warranted on September 16, 1999 (64 FR 50394). Adult spring chinook salmon enter the Rogue River in the spring, remain in the mainstem above Gold Ray Dam through the summer, and spawn in the fall. Fall chinook salmon enter the system early in the fall and spawn through December, tending to use the river and tributary systems below Gold Ray Dam. Juvenile outmigration occurs in the spring. Habitat loss and degradation are widespread throughout the ESU. However, the Rogue River chinook runs are considered relatively healthy compared to other rivers in the ESU.

3. OPERATION FOR 2002-2005 IRRIGATION SEASONS

GPID will continue to divert up to 150 cfs of water annually from the Rogue River at Savage Rapids Dam into GPID’s distribution system. In addition, the GPID Board will make every effort to promote support for dam removal, secure legislation to authorize and fund dam removal, complete dam removal, and ensure construction and implementation of the replacement pumping facility.

GPID historically began diverting water in April, with water use increasing throughout the summer months of June, July and August. As a result of concerns about killing downstream migrating juvenile SONC coho salmon, the diversion startup date has been moved into May. Historically, diversion rates begin to decline in September and the end of the irrigation season is in October. Prior to the beginning of the irrigation season (usually in late April), the radial gates are opened to lower the reservoir pool, allowing installation of the stoplogs. Three metal stoplogs are placed in each of the 16 bays to raise the reservoir water surface elevation 11 feet above the concrete crest of the dam to an elevation of 964 feet above mean sea level. Once this is done, the radial gates are partially closed to fill the reservoir without completely interrupting riverflow. Approximately 1,000 cfs are allowed to pass until the filling is completed and the fish ladders are functioning. GPID will minimize the amount of time the radial gates are open, especially when installing or removing the flash boards, to minimize delays of upstream adult fish passage. The operation of the radial gates in the fall should coincide with periods when runs of adult coho salmon are at their lowest (minimum number of fish moving in the river) to reduce the adverse impacts to migration. This timing should be closely coordinated with ODFW, NOAA Fisheries, and Oregon Department of Water Resources.

GPID will continue to seek the advice of consultants and staff to make reasonably practicable adjustments to improve fish passage at the dam and to minimize impacts of the facility to listed fish. These adjustments will be based on adaptive management feedback from annual operations, and include input from GPID staff and NOAA Fisheries. The District will devote the remaining portion of its \$265,000 grant from the State of Oregon to make improvements at the fish passage facilities that GPID, its consultants, and NOAA Fisheries deem reasonable, and provide additional funding as needed to complete and maintain improvements, and to ensure compliance with monitoring, conservation measures, and take minimization. Improvements include, but are not limited to, eliminating gaps around the screens, repairing screens, and repairing fencing around fish ladders.

3.1 North Turbine/Pump Intake

GPID will not divert water at the North Turbine/Pump Intake prior to May 7 of each year the permit is in effect. After May 7, water can be diverted so long as measured impacts on listed salmonids do not exceed the trigger levels identified in the monitoring plan below. As set forth in the monitoring plan, irrigation diversions at the North Turbine/Pump Intake will also be halted when trigger levels of listed coho salmon are present.

GPID will continue to operate and maintain a brush seal at the base of the traveling screens, as well as a screen backwash system. GPID will continue to operate and maintain the seal improvements between the traveling screen panels. GPID will eliminate gaps bigger than 1.75 mm, if physically possible to do so. GPID will also continue to operate and maintain the other interim measures installed prior to the start of water diversions in 1998-2001 (including modifications to the bypass system and forebay lighting to attract juveniles). GPID will adjust port flows through the fish bypass to levels of 2000 to reduce trapping mortalities.

GPID will clear debris from the trash racks in front of the traveling screens on a daily basis. GPID will also inspect and attempt to clean the bypass ports daily.

3.2 South Gravity Intake

GPID will operate and maintain the interim measures installed prior to the start of water diversions in 1998-2001. The interim measures are: Maintenance of the new screen; operation and maintenance of the motorized screen cleaner; operation of the light at the head gate; operation and maintenance of the perforated baffle plates behind the juvenile fish screens; and operation and maintenance of the neoprene seals around the screens. GPID may divert water into the South Gravity Intake at any time, provided GPID does not exceed a 0.4 fps approach velocity at the bar screens.

3.3 Fall Operations

GPID will commence pulling stoplogs on October 9, and complete all stoplog removal by November 1, of each year.

3.4 Monitoring and Reporting

Monitoring will be conducted for GPID by a qualified consultant acceptable to NOAA Fisheries, with assistance as necessary from ODFW and NOAA Fisheries. The existing traveling screen bypass trap will be operated at the North Turbine-Pump Intake, unless NOAA Fisheries and GPID agree to some other location. As agreed to at a meeting on February 4, 2002, GPID will alter the configuration of the portals at the traveling screen bypass trap to ensure that flows through the trap approximate flows during the water year 2000, in an attempt to reduce trapping mortalities to the lower numbers experienced in the 2000 sampling year. Once established, these flows will be maintained during the interim period while the pumping facility is in operation and juvenile SONC coho salmon are present. GPID will monitor the bypass trap, and potentially shut down its water diversion, as described below.

During the first two days of operation, GPID will sample the trap at the traveling screen bypass every three hours, beginning no later than three hours following the initial start of irrigation diversion. GPID will immediately cease diversion activities for 72 hours if a cumulative total of 100 or more age 1+ juvenile coho salmon are observed in the trap at any time during a 24-hour period. A NOAA Fisheries representative may be present during this period.

Through June 15 of each year, GPID will sample the trap at the traveling screen bypass every 12 hours during water diversion operations, and once daily until July 15. During this time, GPID will immediately cease diversion activities for 48 hours if 100 or more age 1+ juvenile coho salmon are counted in the trap at the traveling screen bypass during a 24 hour period. For purposes of these “trigger” calculations, five age 0+ fish will be considered to be the equivalent of one age 1+ fish.

In addition, in the event that excessive juvenile coho salmon mortalities result from trapping, subsampling at the traveling screen bypass by GPID will be permitted to reduce mortalities as long as NOAA Fisheries is informed and involved in the subsampling strategy development. Any subsampling strategy must include measured sampling periods throughout the 24-hour period, be representative of the sampling period, and be frequent enough to reasonably minimize trapping mortalities.

The following additional monitoring actions are required of GPID:

1. GPID will continue a net-based sampling program on one of the two canals flowing from the Tokay Canal/Evans Creek Lateral headworks to quantify numbers of fish which may be bypassing screens, with monitoring of the net done daily during each business day after water diversions begin at the North Turbine-Pump Intake through July 15.
2. GPID will continue to sample impingement using a washbasket for at least six daylight hours and at least six nighttime hours per week during facility operations.
3. Possible stranding of fish from swimming out of the fishways will be monitored daily if high water occurs, and fences placed along the fishways to prevent adult fish from jumping out of the ladder during migration will be monitored and maintained, and any stranded fish rescued and returned to the river.

A monitoring report that summarizes the available data shall be submitted to Frank Bird of NOAA Fisheries (fax 503.957.3386) on a monthly basis, by the 10th day of each month for the previous month, throughout each irrigation season. The report shall include the following information: Trap/net captures by fish species; impingement captures by fish species; individual fork length of dead salmonid captures expressed in millimeters; condition (dead, alive, injured, or descaled) of the captured salmonids including the day and time of capture and whether they were released alive; and number of hours that each trap was fished. All live fish captured by GPID will be released back into the Rogue River below Savage Rapids Dam as quickly as possible, at a location intended to minimize predation. A summary monitoring report shall be sent to Frank Bird and Ed Meyer of NOAA Fisheries (fax 503.231.2318) at the end of each irrigation season, and within 45 days of the termination of operations.

NOAA Fisheries will evaluate compliance with the HCP and ITP, and effectiveness of the HCP, annually upon GPID's submission of the annual monitoring report. Monitoring reports and site visits will form the basis for this evaluation. If necessary, this evaluation may be used to develop adaptive management measures to further minimize effects of GPID operations on take of covered species for subsequent irrigation seasons. NOAA Fisheries will fully discuss with GPID and its consultants changes it believes are needed to minimize take and will make every effort to reach agreement with GPID on changes. The permit may be suspended if GPID is unwilling to make operational changes and minor structural changes NOAA Fisheries believes are necessary.

3.5 Authorization and Funding for Removal of Savage Rapids Dam

During implementation of the HCP, GPID will continue to actively work towards a long-term reduction in take of SONC coho salmon resulting from Savage Rapids Dam through federal authorization and funding for the removal of Savage Rapids Dam, as part of their agreement with NOAA Fisheries and intervenors to settle federal litigation. In January 2002, Oregon Watershed Enhancement Board provided three million dollars to be applied toward dam removal. These funds are contingent on GPID providing an undetermined amount of matching or in-kind funds, and GPID obtaining Congressionally-appropriated funds to complete dam removal. To pursue federal authorization and funding of dam removal and replacement of the dam with electric pumps for irrigation, GPID has agreed to contact Senators Ron Wyden and Gordon Smith and Congressman Greg Walden to re-introduce to Congress legislation similar to that originally introduced in 2000. GPID has agreed to continue to provide funding for lobbying efforts to promote and secure the dam removal legislation.

As part of this HCP, GPID will fulfill all requirements of the August 27, 2001, Federal Consent Decree (Attachment A) with respect to securing authorization and funding for installation of pumps and removal of the dam. These commitments are enumerated in Paragraph V.B.1-3 of the Consent Decree.

4. EFFECTS OF IMPLEMENTATION OF THE HCP

The short-term interim operation of Savage Rapids Dam (HCP implementation period) will not constitute a significant adverse effect on SONC coho salmon, SONC chinook salmon, and KMP steelhead in the Rogue River because of several factors. These include: (1) The interim operation is for four irrigation seasons, a relatively short time period, and a time frame necessary for installation of electric pump stations and/or dam removal to proceed; (2) annual dam operation during the interim period has been modified to minimize effects to migrating salmonids, which GPID has committed to maintaining, and has also agreed to further modify dam operations based on annual adaptive management changes; (3) the dam will shut down operations if approved take triggers are exceeded; and (4) cumulative impacts of the annual operations' effects are not expected to amount to significant levels over the four-season time frame.

The annual operation of Savage Rapids Dam, however, and the existence of the dam itself, create significant adverse impacts over the long term on all five runs of salmon and steelhead in the Rogue River, including the listed SONC coho salmon (BOR 1995)². The ODFW has estimated that juvenile fish losses of up to 10% could be expected at Savage Rapids Dam from predation associated with structural concentration factors (fish passes, spillways, dam face, etc.), and that

² GPID does not agree with this assessment of the impacts of the Dam on salmonids in the Rogue River or the characterizations of their biological status. Those portions of this HCP have been prepared by NOAA Fisheries.

juvenile fish passage losses from all causes may average 10-15%. Predation losses are possible in the reservoir pool or tailrace due to changing the elevation of water in the pool during irrigation startup and shutdown, and from concentrating fish at fish passage structures. Potential predators include cormorants, herons, osprey, mergansers and kingfishers, all commonly observed along the Rogue River. Losses not related to predation for juveniles include direct losses associated with screen impingement, turbine strikes, trap effects, turbulence effects, and being entrained in irrigation ditches.

Total mortality of juvenile salmonids related to operation of Savage Rapids Dam is estimated based on the overlap in the timing of migration with the period of dam operation, and by the proportion of flow affected by the dam. All fish entrained into the irrigation canals past the screens (both on the north and south side) die because there is no return route to the river. The turbines on the north side were not designed to be fish friendly, and approximately 30% of the entrained fish that pass through them are killed or injured. In addition, approximately half of the fish impinged by the screen die, and there is additional mortality associated with the pump. Many of these losses have been minimized through adjustments to dam operations, but continue to be a source of loss each year.

Adult fish passage losses of 10-30% are also possible, depending on the flow year. The poor design of the fishways likely result in substantial delay and some mortality of adults. The most notable effects of Savage Rapids Dam on adult fish passage in the past have been on spring chinook and steelhead during periods of high flow. When flow exceeds roughly 10,000 cfs, spill occurs over all bays of the dam and the attraction flows into the ladder become difficult for adult fish to locate. This results in a delay of upstream migration until flows recede. In addition, the 3.5 miles long reservoir pool created by the dam inundates what ODFW would otherwise consider a productive spawning area for fall chinook salmon, with an estimated 4,000 chinook salmon spawning sites available. Adult SONC coho salmon have also been observed to jump out of the fish passage structures on the south side, thus resulting in eventual death. Many of these sources of loss have been minimized through adjustments to dam operations, but continue to be a source of loss each year.

A high percentage (up to 94.4% in 1983) of wild coho salmon entering the Rogue River pass Gold Ray Dam upstream of Savage Rapids Dam (GPID 2001). The percentage that pass Savage Rapids Dam would be even greater as Evans Creek, a major core area for coho salmon, enters the Rogue River between Savage Rapids Dam and Gold Ray Dam, where counting occurs. Given the large proportion of wild coho salmon migrating past Savage Rapids Dam, the losses that occur as a result of the dam and its appurtenant facilities could threaten the long-term survival and limit the recovery of coho salmon in the Rogue River should it remain in place.

The modifications in operational and maintenance procedures of the GPID water diversion activity, as implemented since 1998, have not shown any detectable impacts to the habitat of the forebay area of the Savage Rapids Dam, however, reductions in salmonid mortality have been observed. Improved habitat conditions may be detectable in the tailrace area because of changes

in the spill pattern (over the dam crest onto the mid-channel rock abutment) and in the hydraulic profile resulting from the modified stoplog design and placement.

Facility operations and alteration of dam and pool hydraulics will not alter the habitat conditions within the reservoir area of Savage Rapids Dam. Conditions will remain as they have since the dam was constructed over 75 years ago. Structural and operational modifications of the dam crest, implemented under this alternative, will have a positive impact relative to the hydraulic conditions in the tailrace zone downstream of Savage Rapids Dam by concentrating spill in the deeper portions of the tailrace.

Although lethal and non-lethal impacts to SONC coho salmon would result from implementation of the HCP, conservation measures will reduce the potential for take. Measures implemented as part of the HCP would reduce the potential for take in the following ways:

1. The addition of forebay lighting to attract fish over the spillway would reduce the number of juveniles that are impacted by the dam. A study conducted by GPID in 1998 demonstrated that fish use of the north-side bypass system appeared to drop by 90% on nights when lighting over the spillway was turned on. There was no increase in fish entrainment on those nights, so the fish apparently passed over the spillway as intended. A small percentage migrate past the dam during the day when the lighting would not provide attraction, but the proportional distribution across the dam face for a small population of migrants should keep entrainment and impingement to very low numbers during the day. Sampling through 24-hour periods between May 8 and May 23, 2001 indicates that about 15% of downstream migrant coho salmon fry are moving between the hours of 7 AM and 7 PM, which would leave a proportion of them susceptible to entrainment in GPID facilities.
2. Fences have been placed along the fishways (ladders) to prevent upstream migrating adult fish from jumping out and being stranded. This directly reduces mortality. However, the fencing washes out at high flows, creating the opportunity for stranding outside the ladders. It is also difficult to replace the fencing at high flows, which increases the opportunity for extended time of stranding. Repairs of the fencing would occur as soon as safe working conditions permits.
3. The delayed start for diversion at the north turbine is designed to minimize impacts to migrating juvenile coho salmon. The traveling screen bypass trap will be operated at this location to monitor the migration of juvenile coho salmon. If trigger numbers of coho salmon are trapped, then GPID will shut down the diversion for either 72 or 48 hours, depending on date of trapping. This is designed to minimize mortality and injury to migrating juveniles. In the event that excessive juvenile coho salmon mortalities result from trapping, subsampling at the traveling screen bypass by GPID will be permitted, to reduce mortalities, as long as NOAA Fisheries is informed and involved in the subsampling strategy development. Any subsampling strategy must include measured

sampling periods throughout the 24-hour period, be representative of the sampling period, and be frequent enough to reasonably minimize trapping mortalities.

4. To further reduce the potential for take to juvenile coho salmon, GPID will operate and maintain brush seals around the screens, and a screen backwash system. This backwash system will be monitored for juvenile salmon mortalities by sampling backwash water.
5. If necessary, GPID will make changes based on an annual evaluation of operations to further reduce the potential for take of affected species.

5. FUNDING FOR THE HCP

GPID commits to provide adequate funding for the measures described in the HCP. The District has submitted information indicating that it has sufficient funds to implement the HCP, but should a shortfall occur due to the length of the interim implementation period of the HCP, GPID commits to securing funding for the duration of the HCP.

6. REFERENCES

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Figure 1. Vicinity map.

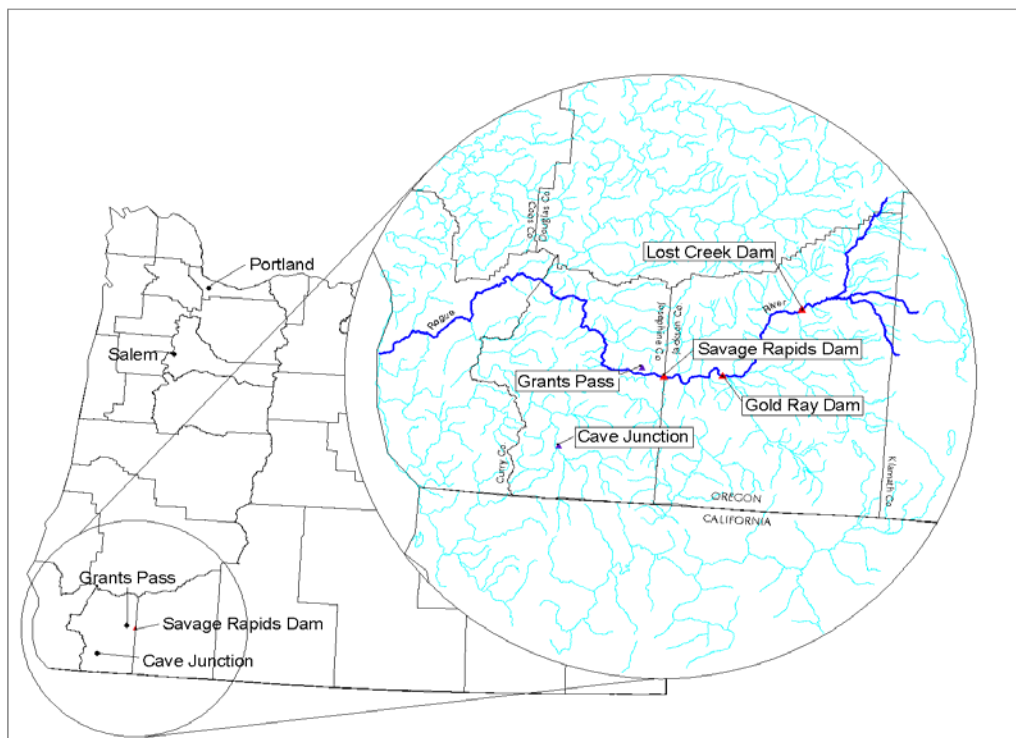


Figure 2. **Location of Savage Rapids Dam.**

